a.c. generator. In systems with non-synchronized power compounding the use of water-cooling in turbogenerators gives new possibilities of design of current transformers for power-compounding. Figure 3 presents the principles of such a system. Power transformers with water-cooled coils make possible to apply in large-size turbo-generators a system of synchronized phase-sensitive compounding. Figure 4 shows one of the possible versions of the circuit diagram. The design of water-cooled transformer-coils was recommended by A. V. Shapiro. The self-excitation by gas discharge has several defects. A system with independent excitation by thermionic excitation proves to be more effective. In this case it is most favorable to use inductor generators with increased frequency as sources. Investigations have been carried out in this direction with the participation of S. A. Borisova, V. Ya. Gol'mshtok, K. V. Lapayev and Yu. A. Nesterov. The investigations proved that the requirements could be met by simultaneous automatic action on the voltage change in the valve source (Fig 5). Figure 6 shows and describes a combination of power-compounding with excitation by gas discharge.

Possible Directions of Development of Automatically Regulated Turbogenerator Excitation Systems

SOV/105-59-12-2/23

In this system the current rectifier is fed via an anode transformer directly connected to the outlet of the turbogenerator. The diagram shown in figure 5 has the patent number 122520, 2/1 1959, to the names of Ya. N. Shtrafun, L. G. Alekseyeva, S. A. Borisova and K. V. Lapayeva. There are 6 figures and 3 Soviet references.

SUBMITTED: November 6, 1959

Card 3/3

GLEBOV, I.A., kand.tekhn.nauk; KASHTELYAN, V.Ye., inzh.; SHTRAFUN, Ya.N., kand.tekhn.nauk

Study of an ionic-semiconductor excitation system of large turbogenerators. Elektrichestvo no.5:7-14 My '62. (MIRA 15:5)

1. Leningradskiy filial Vsesoyuznogo nauchno-issledovatel'skogo instituta elektromekhaniki (for Shtrafun).
(Turbogenerators)

OBNOVLENSKIY, Petr Avenirovich; ZHESTYANIKOV, Vladimir Mikhaylovich; ZARKH, Isaak Moiseyevich; RABINOVICH, Abram Grigor'yevich; SHTRAFUN, Ya.N., kand. tekhn.nauk, retsenzent; TERGAN, V.S., inzh., retsenzent; BUMSHTEYN, S.I., red.

[Manufacture of automatic control and remote control equipment] Proizvodstvo apparatury avtomatiki i telemekhaniki. Moskva, Mashinostroenie, 1964. 402 p. (MIRA 17:10)

USSR/Chemical Technology. Chemical Products and Their Application -- Leather. Fur. Gelatin. Tanning agents. Technical proteins, I-29

Abst Journal: Referat Zhur - Khimiya, No 2, 1957, 6836

Author: Voyutskiy, S. S., Shtrakh, B. V.

Institution: None

Title: Structure of Films of Latices and Dispersions of Synthetic Resins

Original Publication: Legkaya prom-st', 1953, No 5, 21-24

Abstract: No abstract

Card 1/1

SEMENOVA, T.V.; KHACHATRYAN, M.G.; SHTRAKHER, L.I.

Processing of nitron to yarn in the Sverdlovsk Woolen and Worsted Combine. Tekst. prom. 25 no.8:82-84 Ag '65. (MIRA 18:9)

1. Zamestitel' glavnogo inzhenera Sverdlovskogo kamvol'nogo kombinata (for Semenova). 2. Nachal'nik pryadil'noy fabriki Sverdlovskogo kamvol'nogo kombinata (for Khachatryan). 3. Zaveduyushchiy tekhnicheskogo otdela Sverdlovskogo kamvol'nogo kombinata (for Shtrakher).

AL'TSHULER, Z.Ye., inzh.; BASTUNSKIY, M.A., inzh.; BERSTEL', V.N., inzh.; BIRENBERG, I.E., inzh.; BOGOPOLSKIY, B.Kh., inzh.; BUKHARIN, S.I., inzh.; GERSHTEYN, B.G., inzh.; GRINSHPUN, L.V., inzh.; DREYYER, G.I., inzh.; DINERSHTEYN, A.G., inzh.; ZLATOPOL'SKIY, D.S., iznh.; KLANYUK, A.V., inzh.; KOZIN, Yu.V., inzh.; LEVITIN, I.P., inzh.; MEL'NIKOV, L.F., inzh.; MEL'KUMOV, L.G., inzh.; MADEL', M.B., inzh.; PAVLOV, N.A., inzh.; PASLEN, D.A., inzh.; PESIN, B.Ya., inzh.; PYATKOVSKIY, P.I., inzh.; RAZNOSCHIKOV, D.V., inzh.; ROZENOYER, G.Ya., inzh.; ROZENBERG, R.L., inzh.; ROYTENBERG, N.L., inzh.; RYABINSKIY, Ya.I., inzh.; SYPCHENKO, I.I., inzh.; TABACHNIKOV, L.D., inzh.; FEL'DMAN, E.S., inzh.; SHTRAKHMAN, G.Ya., inzh.; SHTERMGAS, N.S., inzh.; LEVITIN, I.P., otvetstvennyy red.; STEL'MAKH, A.N., red.izd-va; BEKKER, O.G., tekhn.red.

[Overall mechanization and automatization of production processes in the coal industry] Kompleksnaia mekhanizatsiia i avtomatizatsiia proizvodstvennykh protsessov v ugol'noi promyshlennosti. Pod red. IU.V.Kozina i dr. Moskva, Ugletekhizdat, 1957. 82 p. (MIRA 11:3)

1. Gosudarstvennyy proyektno-konstruktorskiy institut. 2. Institut Giprouglesavtomatizatsiya i Tekhnicheskogo Upravleniya Ministerstva ugol'noy promyshlennosti (for all except: Levitin, Stel'makh, Bekker)

(Automatic control) (Coal mining machinery)

S/137/62/000/001/125/237
A052/A101

AUTHORS: Kushta, G. P., Shtrakhman, K. M.

TITLE: Investigation by the differential thermography method of the decomposition process of supersaturated solid solutions in the Al-Zn system

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 1, 1962, 10, abstract 1I69 ("Nauchn. ezhegodnik za 1957 g. Chernovitsk. un-t". Chernovitsy, 1958, 485-488)

TEXT: The decomposition process of supersaturated solid solutions in the Al-Zn system was studied by the method of differential thermal analysis with Kurnakov's pyrometer at the rate of heating 4 deg./min. As initial materials chemically pure Al and Zn were used; the alloys contained 0, 10, 15, 20, 25, 30, 35 and 40% Zn. Three thermal effects were detected on thermographs taken in the process of heating the samples water-hardened at 400°C. The first exothermic effect, observed at 90 - 120°C, shifted into the region of lower temperatures with an increase of Zn content in the alloy and was conditioned by the formation of the next short-range order regions at the decomposition of the

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solid solution. The piling up of Zn atoms into zones reduced the internal energy of the alloy and was accompanied by the heat liberation. The second endothermic effect, observed at 140 - 200°C, shifted with an increase of Zn content into the region of higher temperatures and was conditioned by the superposition of two processes - elimination of unstable short-range order regions and enriching the remaining regions with Zn. The second process prevailed since the heat absorption took place. The third exothermic effect took place at 200 - 260°C, that is at the temperatures near to those on the equilibrium constitution diagram. This effect was conditioned by the incoherent decomposition of the solid solution and shifted, with an increase of Zn content, into the region of high temperatures.

L. Belyakov

[Abstracter's note: Complete translation]

L 31865-65 EWT(m)/EWP(w)/EWA(d)/EPR/T/EWP(t)/EWP(b) Ps-4 IJP(c) JD/JG

ACCESSION NR: AP5003366 S/0149/64/000/006/0094/0097

AUTHOR: Shtrakhman, K. M.

TITLE: Zener relaxation effect in homogeneous Ag-Mg solid solutions

SOURCE: IVUZ. Tsvetnaya metallurgiya, no. 6, 1964, 94-97

TOPIC TAGS: silver alloy, magnesium alloy, homogeneous solid solution, Zener relaxation, internal friction, elastic aftereffect, relaxation oscillator

ABSTRACT: The relaxation effect in homogeneous substitutional solid solutions of the Ag-Mg system were studied by measuring the internal friction and the elastic aftereffect on a relaxation oscillator. The Mg content found at the end of the measurements was 17.9, 21.9, and 25.7 at. %. The temperature and concentration dependence of the relaxation time and the concentration dependence of the activation energy of the relaxation process were determined. The change in the activation energy with concentration is considered as a function of the energy of elastic distortion of the solid solution lattice caused by the magnesium atoms. The coefficients of diffusion of Mg in the solid solutions of the Ag-Mg system were determined, and their temperature dependence was plotted. Orig. art. has: 5 figures, 2 formulas and 1 table.

Card 1/2

L 31865-65

ACCESSION NR: AP5003366

ASSOCIATION: Kafedra teoreticheskoy fiziki, Moskovskiy institut stali i splavov (Theoretical physcis department, Moscow steel and alloys institute)

SUBMITTED: 27Dec63 ENCL: 00 SUB CODE: MM, SS

NO REF SOV: 002 OTHER: 005

Card 2/2

S/0181/64/006/004/1152/1157

ACCESSION NR: AP4028445

AUTHORS: Shtrakhman, K. M.; Piguzov, Yu. V.

TITLE: Temperature and concentration dependence of the relaxation effect in homogeneous solid replacement solutions of silver and cadmium

SOURCE: Fizika tverdogo tela, v. 6, no. 4, 1964, 1152-1157

TOPIC TAGS: temperature dependence, concentration dependence, relaxation effect, silver, cadmium, solid solution, relaxation oscillator RKF MIS

ABSTRACT: Measurements of internal friction were made in an RKF MIS relaxation oscillator, on samples containing 21.4, 26.6, 31.0, and 35.3% Cd. The samples were very carefully prepared and treated, and (after measurements) they were chemically analyzed and the lattice constants and structures were determined. By means of the internal-friction measurements and determination of elastic aftereffects, the authors observed the relaxation effect in homogeneous solid replacement solutions of Ag and Cd for different temperatures and the indicated values of Cd concentration. The relaxation time and activation energy of the relaxation process were found to differ but insignificantly from the corresponding values obtained during investiga-

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ACCESSION NR: AP4028445

tion of Cd diffusion by the ordinary method (in solid solutions at a single concentration). It is thus possible to study diffusion processes in Ag-Cd alloys by measuring the inclastic effect. On this basis, the authors computed the diffusion coefficient and plotted its temperature dependence. The activation energy is found to depend directly on the energy of elastic distortion, for one atom of Cd, of the lattice in the solid solution. By examining this energy, the difference may be explained between activation energies of Cd and Ag diffusion and between the diffusion rates of the two under identical conditions of temperature and concentration. "The authors consider it their duty to point out that this topic was suggested by Professor B. N. Finkel'shteyn, Doctor of the physical and mathematical sciences, now deceased. They also thank Yu. Kh. Vekilov for discussions on the results of the work." Orig. art. has: 6 figures and 1 table.

ASSOCIATION: Moskovskiy institut stali i splavov (Moscow Institute of Steel and Alloys)

SUBMITTED: 05Nov63 DATE ACQ: 27Apr64 ENCL: 00

SUB CODE: MM, SS NO REF SOV: 001 OTHER: 007

Card 2/2

ACCESSION NR: AP4043340 S/0181/64/006/008/2274/2280

AUTHORS: Shtrakhman, K. M.; Piguzov, Yu. V.

TITLE: On the mechanism of the relaxation effect in homogeneous substitutional solid solutions based on silver

SOURCE: Fizika tverdogo tela, v. 6, no. 8, 1964, 2274-2280

TOPIC TAGS: solid solution, relaxation effect, silver alloy, lattice deformation, temperature dependence

ABSTRACT: In view of the incompleteness of the existing theories of the relaxation process, the authors attempted to obtain a more satisfactory quantitative agreement with the experimental results of the relaxation effect in solid solutions of the systems Ag-In, Ag-Cd, and Ag-Mg. A new formula is derived for the degree of relaxation, including relaxation both due to the change in the energy of the atomic interaction and due to the change in the energy of

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ACCESSION NR: AP4043340

the solid-solution lattice deformation. This theorem is based on the theory of LeClaire and Lommer concerning the Zener relaxation effect as a result of the change in the degree of the short-range order. The results are compared with the experimental values and temperature and concentration dependences of the degree of relaxation in these systems are plotted. It is concluded that a theory of LeClaire and Lommer is more consistent in all respects than the Zener concept of reorientation of pairs of dissolved atoms. The relaxation effect proposed by LeClaire and Lommer is refined by introducing not only the change in the energy of interaction of the atoms during the relaxation but also the energy of the elastic deformation of the lattice. The formula derived for the degree of relaxation takes into account the changes in the energy of interaction of the atoms and the energy of the elastic deformation. The contributions from both types of energy are evaluated separately. The temperature dependence and the concentration dependence of the degree of relaxation were investigated by measuring the internal

Card 2/3

ACCESSION NR: AP4043340

friction and the elastic aftereffect. Orig. art. has: 2 figures, 10 formulas, and 1 table.

ASSOCIATION: Moskovskiy institut stali (Moscow Institute of Steel)

SUBMITTED: 06Jan64 ENCL: 00

SUB CODE: SS NR REF SOV: 000 OTHER: 013

Card 3/3

[illegible], B.N.; SHTRAKHMAN, K.M.

[illegible]g the inelastic effect in solid solutions of substitution [illegible] the system Ag - In. Fiz. met. i metalloved. 18 no.4:617-622 [illegible]. (MIRA 18:4)

[illegible], Moskovskiy institut stali i splavov.

[illegible], [illegible].

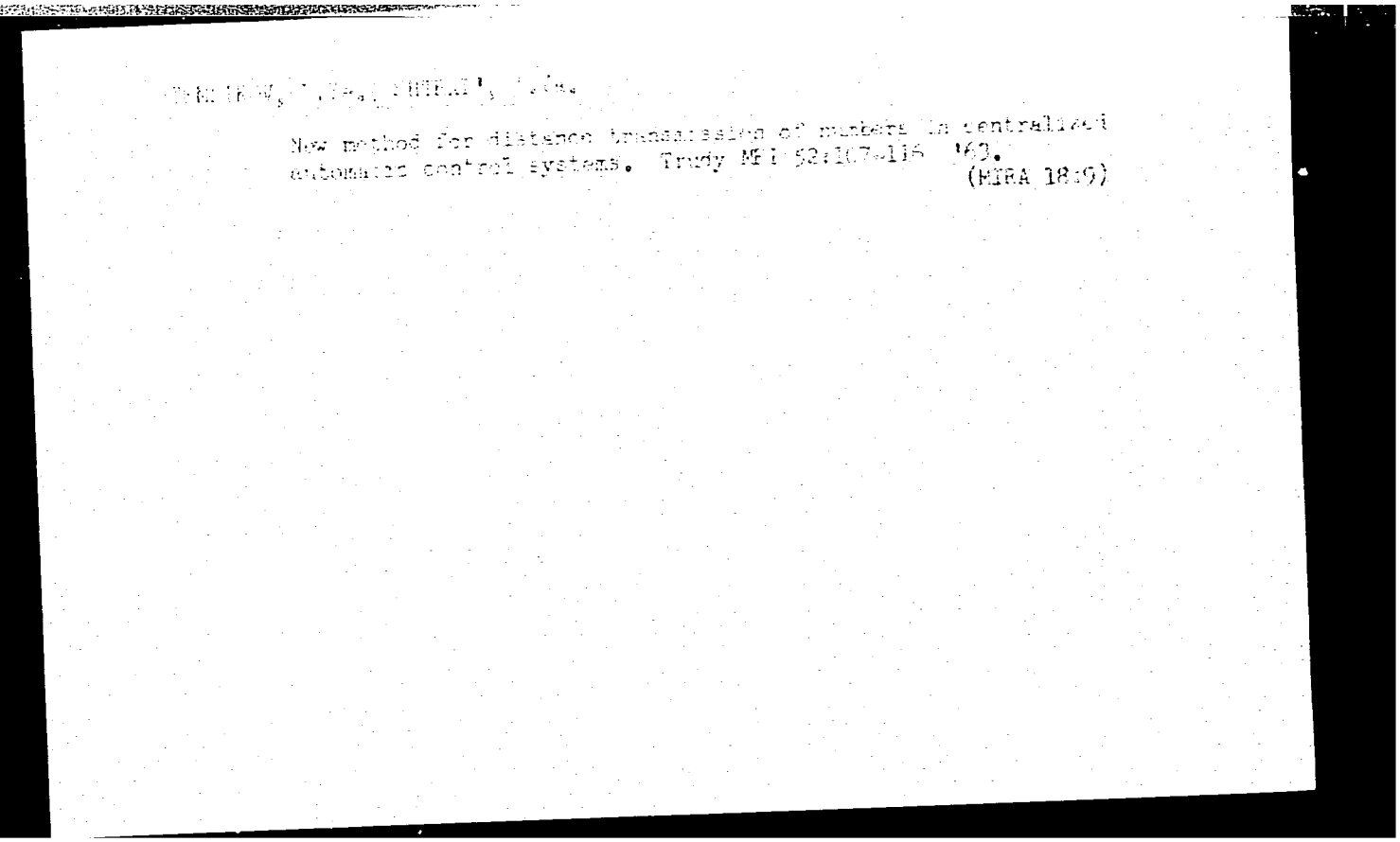
The [illegible] solid solutions. Izv. vys. ucheb. zav.; tsvet. met. 7 no.[illegible]:94-97 '64. (MIRA 18:3)

1. Moskovskiy institut stali i splavov, kafedra teoreticheskoy fiziki.

DIKO, N.S.; LUKASHOVA, Ye.N.; NITOBURG, E.L.; SHTRAKHOV, A.I.; ZABIROV, B.Sh., red.; SERGEYEVA, S.I., red.; LEBEDEVA, S.K., red.; GREVTSOVA, V.A., tekhn.red.

[Argentina, Paraguay, Uruguay, Chili; 1:5000000] Argentina, Paragvai, Urugvai, Chili; 1:5000000. Moskva, Gos.izd-vo geogr. lit-ry, 1961. ___ [Text] 1961. 36 p. (MIRA 15:4)

1. Russia (1923- U.S.S.R.) Glavnoye upravleniye geodezii i kartografii.
(South America—Maps)



New method for distance transmission of numbers in centralized automatic control systems. Trudy MEI 52:107-115 '63.
(MIRA 18:9)

SHTRAL', I.Ya.

New discovery of lower Silurian graptolites in the central Kara-Tau. Trudy MGRI no.26:238-239 '54. (MLRA 8:12)
(Kara-Tau--Graptolites)

L 57597-65 EWT(d)/EWP(v)/EWP(k)/EWP(h)/EWP(l) Pf-4

ACCESSION NR: AR5000571 S/0271/64/000/009/A027/A027
658.562.011.56

SOURCE: Ref. zh. Avtomat. telemekh. i vychisl. tekhn. Sv. t., Abs. 9A190

AUTHOR: Temnikov, F. Ye.; Shtral', I. Ya.

TITLE: New method of transmission of numbers in supervisory control systems

CITED SOURCE: Tr. Mosk. energ. in-ta, vyp. 52, 107-116

TOPIC TAGS: supervisory control, industrial automation / Tsentrotekhnika supervisory control

TRANSLATION: Networks of code circulation, a principle of monitoring deviated-from--normal values, a consistent centralization of operations, etc., are used in the "Tsentrotekhnika" system. As the normal-value settings are dealt with only during the measurements or controls under scanning conditions, they were transferred to the storage (memory) device of the central station. Such centralized and on-request transferred to peripheral stations settings are called floating. Passing from local to floating settings imparts some advantages to the system: simplifies the system as a whole, enhances its reliability, and permits wider use of digital techniques. Some new variants of the "Tsentrotekhnika" system

Card 1/2

L 57597-65
ACCESSION NR: AR5000571

which adopted the floating settings are described: a variant with one setting transmitted during the pause and also a variant with one setting and a rapid scanning during the pause. Limits of application of each variant are stated. The latter variant proved to be the simplest and most reliable; however, it is applicable only if a greater speed of code circulations is possible. Also an effective method of transmission multidigit numbers by using a code-circulation network without counters is indicated. Six illustrations. Bibliography: 4 titles.

SUB CODE: DP, IE ENCL: 00

Card 2/2

L 51849-65 EWT(d)/EWP(v)/EWP(k)/EWP(h)/EWP(l) Pf-4

ACCESSION NR: AR4046568 S/0271/64/000/008/A019/A019
62.5:658.562

SOURCE: Ref. zh. Avtomat., telemekh. i vychisl. tekhn. Svodnyy tom, Abs. 8A136

AUTHOR: Shtral', I. Ya. 15 B

TITLE: Equipment of the peripheral center of "Tsentrotekhnika" system

CITED SOURCE: Tr. Mosk. energ. in-ta, vyp. 52, 1963, 125-132

TOPIC TAGS: industrial automatic control, supervisory control

TRANSLATION: Equipment of the peripheral (plant departmental) center of the centralized continuous-process control system is described. The equipment for serving up to 500 points is mounted in one housing. The frame houses five typical chassis. The chassis are specialized according to sensor types. The following devices are mounted on one chassis: a balance detector, a decoder, a compensation-parameter reversing device and time-marking pulse shaper [Translator's note: the Russian original is not clear], compensation, an electromechanical-relay switch, and supply transformers. A block diagram of the typical chassis is given, and its functioning explained. The display panel is located in an inclined part of the housing. The sign of deviation, the moment of compensation, and the accurate

Card 1/2

L 51849-65

ACCESSION NR: AR4046568 0

value of the sensor deviation from normal are signaled. The deviation sign, the sensor number, and the compensation moment are signaled by incandescent lamps. The accurate value of deviation is displayed by IN-1 lamps. The principal circuit of the compensating-parameter reversing unit is given, and its functioning is described. The sensor switch in each 100-point chassis is designed with electromechanical relays connected in a diode matrix circuit. The same circuit indicates the number of the energized sensor. Five illustrations. Bibliography: 1 title.

SUB CODE: DP, IE ENCL: 00

LL

Card 2/2

GAL'PERINA, F. I.; SHTRAMBRAND, V. D.

Boots and Shoes - Trade and Manufacture

Technological improvements in the production of footwear by the method of hot vulcanization, Leg. prom., No. 1, 1952.

Monthly List of Russian Accessions, Library of Congress, March 1952. UNCLASSIFIED.

SKVARIK, V.P.; KUPRIY, O.M.; SHTRAMBRAND, V.D.; ROZENSHTEYN, A.G.
[Rozenshtein, A H.]

Molding of heels on the footwear. Leh.prom. no.1:55-57 Ja-Mr '64. (MIRA 19:1)

BERGMAN,A.A.; ISAKOV,A.I.; MURIN,I.D.; SHAPIRO,F.L.; SHTRANIKH,I.V.; KAZARNOVSKIY,M.V.

[Neutron spectrometer to measure retardation of neutrons in lead] Neitronnyi spektrometr po vremeni zamedleniia neitronov v svintse; doklady, predstavlennye SSSR na Mezhdunarodnuiu konferentsiiu po mirnomu ispol'zovaniiu atomnoi energii. Moskva, 1955. 30 p. [Microfilm] (MLRA 9:3)

(Neutrons) (Spectrometry)

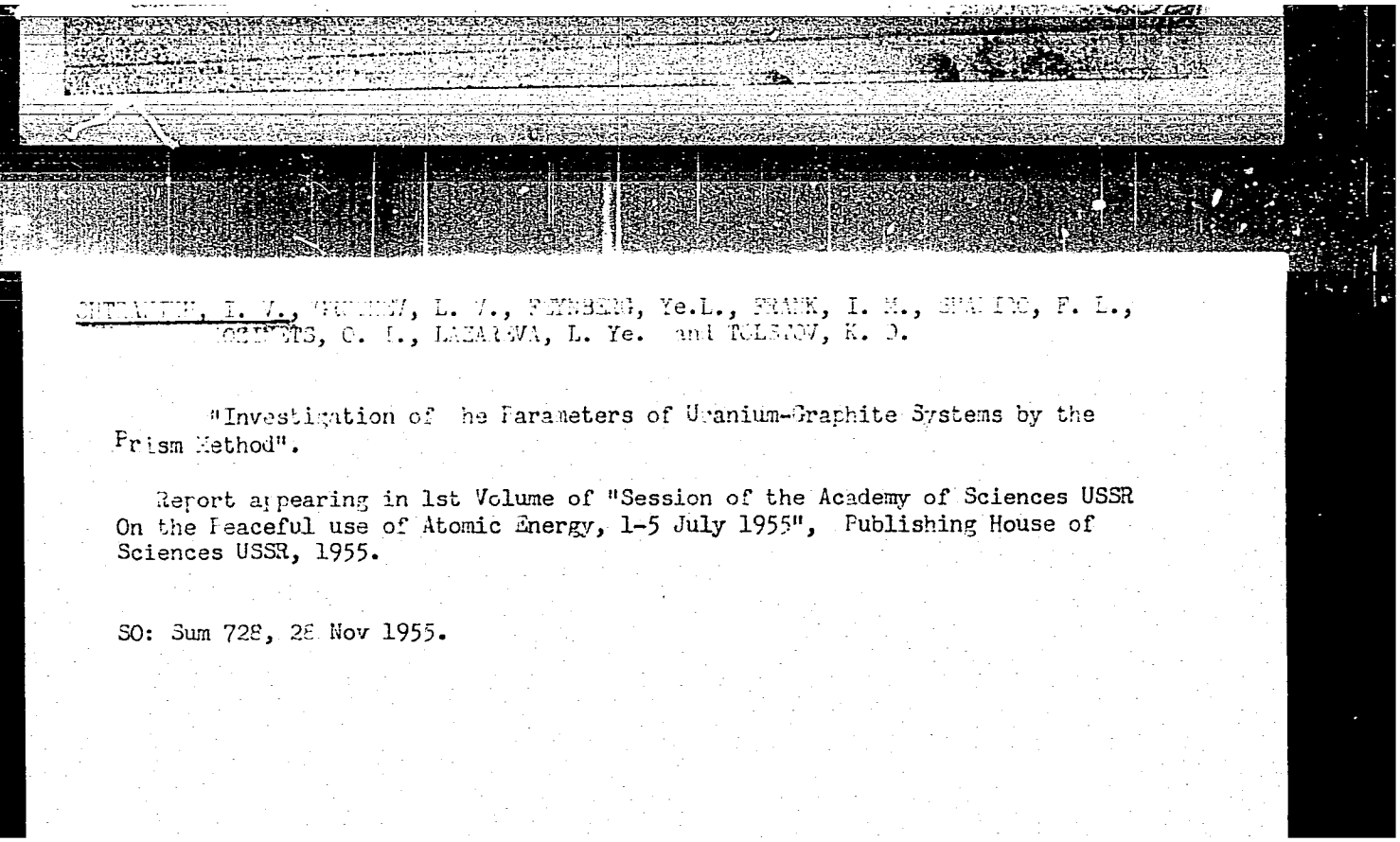
Shtranikh, I. V.

15

1/7026

MEASUREMENT OF TEMPERATURE EFFECTS IN URANIUM–GRAPHITE SUBCRITICAL SYSTEMS. B. P. Ad'yasevich, I. M. Frank, C. I. Kozlinets, F. L. Shapiro, I. V. Shtranikh, and K. D. Tolstov. p.132-56 in Meetings of the Division of Physical-Mathematical Sciences, Session of the Academy of Sciences of the U.S.S.R. on the Peaceful Use of Atomic Energy. July 1-5, 1955. Moscow, Publishing House of the Academy of Sciences of the U.S.S.R., 1955. 370p. (In Russian)

For the purpose of investigating the temperature effects of the multiplication constant $\kappa_\infty = \nu_1 \varphi \theta$, as well as of the factors composing it, two 120 × 120 × 250 cm³ prisms, each placed in its own thermostat, heated up to 300–450°C were used. A study was made of uranium-graphite lattices (slug diameter 32-37 mm) with various uranium concentrations. The thermal utilization factor θ, measured by the "cadmium ratio" method, reveals a positive temperature effect which increases with decreasing uranium concentration. This effect [illegible] high in the presence of cooling water. The of θ, produced by the cooling of neutrons in water when cooling the slug. Experiments showed also that the positive effect on θ increases if the cooling is extended over a layer of graphite adjacent to the slug. Unhomogeneous heating of the moderator allows, in principle, to increase the θ of a heterogeneous system above that of a homogeneous one, with the same concentration of uranium. In order to separate the temperature effect on φ, cold and hot (~ 80°C) water was alternatively circulated through the tubes, containing uranium slugs, the graphite temperature being kept constant. Variation of φ was obtained from exponential measurements of the buckling χ^2, as well as from measurements of the influence of heating on the epicadmium neutron density in the vicinity of the source. The temperature effect on κ_∞ was determined through measurements of χ^2 by the exponential method. The temperature dependence of ν_1 was found by subtracting the contributions due to the variation of φ and θ from the temperature effect on κ_∞. It turned out that ν_1 has a negative temperature effect, approximately proportional to the variation of the mean energy of the thermal neutrons, caused by [illegible]



[illegible], I. V., [illegible], L. V., FEINBERG, Ye.L., FRANK, I. M., SHALDIN, F. L., [illegible], C. I., LAZAREVA, L. Ye. and TOLSTOV, K. D.

"Investigation of the Parameters of Uranium-Graphite Systems by the Prism Method".

Report appearing in 1st Volume of "Session of the Academy of Sciences USSR On the Peaceful use of Atomic Energy, 1-5 July 1955", Publishing House of Sciences USSR, 1955.

SO: Sum 728, 28 Nov 1955.

ANTONOV, A.V.; ISAKOV, A.I.; MURIN, I.D.; NEUPOKOYEV, B.A.; FRANK, I.M.; SHAPIRO, F.L.; SHTRANIKH, I.V.

[Neutron diffusion in beryllium, graphite, and water, studied by the pulse method] Izuchenie diffuzii neitronov v berillii, grafite i vode impul'snym metodom. Moskva, 1955. 27 p. (MIRA 14:7)

(Neutrons--Scattering) (Beryllium) (Graphite)

SHTRANIKH, I. V.

Average neutron velocities in various media. K. D. Tolstov, F. L. Shapiro, and I. V. Shtranikh. *Sessiya Akad. Nauk S.S.S.R. po Mirnomu Ispol'zovaniyu Atomnoĭ Energii, Zasedaniya Otdel. Fiz.-Mat. Nauk* 1955, 108-29(English summary, 129-31).—The process of slowing down neutrons in the vicinity of the thermal equil. region ($v = 2200$ m./sec.) is influenced by many factors. The av. energy and spectrum of the neutrons depend on the mean energy transferred owing to inelastic collisions, on the capture cross section, the structure and vol. of the moderator, and the temp. of the medium. The influence of these factors on the av. velocity $\bar{v}$ and on the spectrum of thermal neutrons was studied. The $\bar{v}$ was detd. by the ratio flux of neutrons to their d. The d. was measured with a BF_3 ionization chamber, the flux with a Geiger counter, which counted the γ-quanta owing to neutron capture in Cd. The v was obtained by measuring the transmission of neutrons by a $1/\bar{v}$ absorber. The temp. function of the diffusion length was detd. by the exponential method. The changes with temp. of the diffusion coeff. of the neutrons was found by measuring the variation of the neutron density when the medium was heated; the mean free transport path changes were found by measuring the changes of the albedo. Expts. were done with prisms of 60 × 60 × 100 cm. or 20 × 100 × 120 cm. of graphite (I), paraffin (II), H_2O, and H_2O-B, with and without increments having $1/\bar{v}$ absorption. Also, heterogeneous systems with I and H_2O as moderators, like the U-I system, were investigated, and it was found that in I, II, and H_2O the neutrons attain thermal equil. and their velocity spectrum is Maxwellian. If the lifetime of the neutrons within the prism is decreased to 1/20 by introducing neutron absorbers, or to 1/50 by diminishing the dimensions of the prism, $\bar{v}$ is increased up to 40%. Neutrons in the vicinity of the thermal equil. suffer many collisions before they lose their energy; the results agree with the theory of slowing down of neutrons in a cryst. medium. If I is heated up to 300°, the increase of $\bar{v}$ is 6 ± 2% larger than is that of the square of the diffusion length, thus the mean free transport path λ_{tr} decreases 5 ± 1%. The $\bar{v}$ was measured at 20 and 300° in the U-I system with various U concns., and it was found that for any concn. $\bar{v}$ in a homogeneous system is higher than in such a heterogeneous one. It was found by calcn. and measurement that the neutron spectrum emitted by the moderator surface is not only detd. by the neutron spectrum in the moderator, but also by the energy function of λ_{tr}. Therefore, the spectrum of the neutrons in the medium is different from that of the neutrons that have passed through the prism. W. J.

(1)

SHTRANIKH, I V

USSR/Nuclear Physics - Photofission, Lagging neutrons FD-2961

Card 1/1 Pub. 146 - 2/28

Author : Lazareva, L. Ye.; Ratner, B. S.; Shtranikh, I. V.

Title : Delaying neutrons accompanying the photofission of uranium and thorium

Periodical : Zhur. eksp. i teor. fiz., 29, September 1955, 274-279

Abstract : The authors obtain curves of decay and yield of delaying neutron radiation that accompanies the photofission of uranium and thorium. Relative to all the neutrons emitted during photofission of uranium and thorium the lagging neutrons amount to 0.41±0.02% and 0.18±0.01% respectively. Three references.

Institution : Physical Institute im. P. N. Lebedev, Academy of Sciences USSR

Submitted : May 31, 1955

Shtranikh, I. V.

Delayed neutrons accompanying the photofission of uranium and thorium. L. E. Lazareva, B. S. Ratner, and I. V. Shtranikh. *Soviet Phys., JETP* 2, 301-6(1956)(Engl. translation).—See *C.A.* 50, 2313*b*. B. M. R.

3

VORONKOV, Anatoliy Yefimovich, inzh.; KORABLEV, Lev Nikolayevich, inzh.; MURIN, Igor' Dmitriyevich, inzh.; SHTRANYKH, Igor' Vladimirovich, kand. tekhn. nauk; SHTEYNBOK, G.Yu., inzh., ved. red.; SOKOLOV, I.D., inzh., red.; SOROKINA, T.M., tekhn. red.

[High-speed multichannel pulse height analyzer] Bystrodeistvuiushchii mnogokanal'nyi amplitudnyi analizator. Moskva, Filial Vses. in-ta nauchn. i tekhn. informatsii, 1957. 63 p. (Peredovoi nauchno-tekhnicheskii i proizvodstvennyi opyt. Tema 41. No.P-57-16/1) (MIRA 16:3)
(Pulse techniques (Electronics))
(Electronic measurements)

SHTRAMBE... V.

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SOV/58-59-4-7684

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Translation from: Referativnyy Zhurnal Fizika, 1959, Nr 4, p 60 (USSR)

AUTHORS: Balabanov, Ye.M., Barit, I.Ye., Katsaurov, L.N., Frank, I.M., Shtranikh, I.V.

TITLE: Yield and Effective Cross-Section Measurements of $D(t,n)He^4$ and $D(d,p)T$ Reactions for a Thick Heavy-Ice Target

PERIODICAL: V sb.: Yadern. reaktsii na legkikh yadrakh. Moscow, Atomizdat, 1957, pp 48 - 56

ABSTRACT: The authors measured the yield and effective cross sections of $D(t,n)He^4$ and $D(d,p)T$ reactions for heavy ice in the 50 - 200 Kev deuteron energy range. A D_2^+ or HT^+ beam from an ion-accelerating tube was sorted in accordance with the different masses of the particles by means of a magnet and a system of diaphragms. The reaction yield was determined from the number of alpha-particles or protons registered at an angle of 90° to the beam with the aid of proportional counters. For the $D(t,n)He^4$ reaction a maximum was observed for 160 Kev tritons; the magnitude of the cross section at the maximum was equal to 4.3% barn. The yield and cross-section measurements of the $D(d,p)T$ reactions were carried out by way of a check,

Card 1/2

since reliable results for this reaction using a gas target have been published (Sanders et al, Phys. Rev., 1950, Vol 77, p 1754, McNeill, K.G., et al, Phys. Rev., 1951, Vol 81, p 602). The results of the measurements showed that for a significant part of the energy range the obtained cross sections were 10 - 20% less than those obtained using a gas target. The authors assume that this is due to an inaccuracy in the values utilized for the energy losses in D_2O, or to some other systematic errors.

V.I.Ch.

Card 2/2

BALABANOV, Ye.M.; BARIT, I.Ya.; KATSAUROV, L.N.; FRANK, I.M.; SHTRANIKH, I.V.

Measurement of the effective cross section of the $D(t,n)He^4$ reaction in the 40-730 Kev deuteron energy range. Atom. energ. suppl. no.5:57-70 '57. (MIRA 11:2)

(Nuclear reactions) (Deuterons)

BASOV, N.G.; MURIN, I.D.; PETROV, A.P.; PROKHOROV, A.M.; SHTRANIKH, I.V.

Molecular clock. Izv.vys.ucheb.zav.; radiofiz. 1 no.3:50-53 '58.
(MIRA 12:1)

1. Fizicheskiy institut imeni P.N. Lebedeva AN SSSR.
(Time measurements) (Molecules--Vibration)

4

SOV/120-59-2-25/50

AUTHORS: Belovitskiy, G.Ye., Korablev, L.N., Sukhov, L.V. and Shtranikh, I.V.

TITLE: An Apparatus for the Automatic Meaurement of Multiple Scattering of Particles (Ustanovka dlya avtomatizatsii izmereniy mnogokratnogo rasseyaniya chastits)

PERIODICAL: Pribory i tekhnika eksperimenta, 1959, Nr 2, pp 86-90 (USSR)

ABSTRACT: The instrument may be used to carry out both measuring and computing operations on multiple Coulomb scattering. It can also be used to measure lengths. The table of the microscope can be moved repeatedly through fixed intervals (50, 100, 250 and 500 μ). The second coordinate which gives the deviation of the track from the x-axis is transformed into electrical pulses by means of a photoelectric device in the micrometer eyepiece. These pulses are transmitted to the computing part of the apparatus and the number of pulses given by the photoelectric device in each measurement of the y-coordinate is proportional to the magnitude of the first difference in the coordinates. The instrument is not fully automatic since an observer must place the track manually in a standard position The apparatus was checked

Card 1/2

An Apparatus for the Automatic Measurement of Multiple Scattering of Particles

against an observer and the average percentage difference between the semi-automatic machine and an observer working with an ordinary microscope is 1-5%. The use of this machine cuts down the scanning time by a factor of 5 and increases the accuracy because it eliminates any possible arithmetical errors committed by the observer. The instrument can also be used with bubble chambers and Wilson cloud chambers. A.V. Shileiko and M.I.Tret'yakova are thanked for their help.

Card 2/2 There are 4 figures, 1 table and 7 references, 1 of which is Swedish, 1 Italian and 5 are Soviet.

ASSOCIATION: Fizicheskiy institut AN SSSR (Physics Institute of the Academy of Sciences of the USSR)

SUBMITTED: March 31, 1957

MATALIN, L.A.; SHIMANSKIY, A.M.; CHUBAROV, S.I.; SHTRANIKH, I.V.

1024-Channel time analyzer. Prib. i tekh. eksp. no.3:54-63 My-Je '60. (MIRA 14:10)
(Neutrons) (Nuclear counters)

SHTPANIKH, I. V., DYUKOV, G. P., ZABIYAKIN, G. I., AND SHIRAYEV, V. D.

"Multichannel Recording Systems on Magnetic Tape with Averaging of Statistical Data"

Joint Institute of Nuclear Research, Dubna, USSR

report submitted for the IAEA conf. on Nuclear Electronics, Belgrade, Yugoslavia 15-20 May 1961

SHTRANIKH, I V.

21398
S/120/61/000/002/008/042
E192/E382

24.6600

AUTHORS: Voronkov, A.Ye., Galaktionov, A.I., Murin, I.D., Sukhov, L.V. and Shtranikh, I.V.

TITLE: An Instrument for Automatic Inspection of Nuclear Photo-emulsions by the Television Raster Method. I. Servo Systems

PERIODICAL: Pribory i tekhnika eksperimenta, 1961, No. 2. pp. 63 - 68 + 1 plate

TEXT. The following two types of problems can be solved by using nuclear photo-emulsions:
1) search for the required events (stars and tracks from a given direction and density, etc.) and determining the number of such events in a given volume of emulsion;
2) inspection or scanning of chosen tracks in order to determine their scattering, ionisation, etc.
An automatic instrument capable of performing the following operations on photo-emulsions is described:
a) automatic following of a given track in three coordinates

Card 1/10

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E192/E382

An Instrument for ....

with continuous reading of the instantaneous coordinates X_1, Y_1, Z_1 and time t necessary for moving to the next coordinates, increments in the angle φ of the direction of the trace during time t and the determination of the multichannel ionisation spectrum of the trace,
b) automatic measurement of multiple scattering of a given track by the coordinate method with the reading of the instantaneous first, second and third differences, length of a cell, time t taken to move along the cell, determination of the spectrum of the positive and negative second differences and the ionisation spectrum of the track;
c) determination of the tracks in a given direction with automatic following of these tracks.
Only the servo systems of the equipment is described, while the apparatus for recording the output data such as coordinates and time is not mentioned. The system is based on the use of the video signals which are obtained during the scanning of a section of a photo-emulsion, which is seen in the field of a projection microscope and is projected

Card 2/10

An Instrument for ....

on the photocathode of a television-camera tube (type ЛИ-101 (LI-101)). In order to obtain the maximum ratio of track signal/background noise the slots which are usually employed in such equipment were eliminated (Refs. 1-3). The system is based on the principle of digital recording. Each field of the television picture is counted as the number of grains in a track; the deviation of the track from its central position in the field of vision of the camera tube is similarly recorded. On this basis it was possible to design an instrument capable of tracking only one grain (in the absence of background grains) which corresponds to the signal/noise ratio of about 1/400 over a segment of track 200 μ long. The functioning of the system is as follows. Of all these signals, from each line of the television reproduction of the picture, only those are selected which enter the so-called control zone a which is from 2 - 24 μ wide (depending on the chosen width of the zone and magnification of the microscope). Initially, the investigated track is introduced into this zone. The control zone is situated

Card 3/10

An Instrument for ....

in the middle of the lines and is divided into four sub-zones. I - IV. secondly, horizontally, it is divided into eight equal lanes, 1-8, having a width of 0.25 - 0.27 μ (and minimum duration of 0.25 μs). The signals of the television picture, from the camera 1 (Fig. 2 gives the block diagram of the equipment) are applied to the amplifier 2, where they are shaped by an artificial line 3 whose length can be adjusted from 0.1 - 0.5 μs. The signals then pass through a fast limiting circuit 4 and are applied to a control unit 5. Simultaneously, these signals can be observed on the screen of a control television receiver 26. The deviation of a track from its so-called central position with regard to the four sub-zones is determined in the control unit 5. The deviations of the track from its central position can be of three kinds:

a) lateral deviations α;
b) angular deviations β, and
c) mixed deviations γ, where both the lateral and angular deviations are observed.

Card 4/10

An Instrument for ....

The deviation k is expressed as the number of pulses corresponding to the number of the lanes ℓ multiplied by the number of lines n in a sub-zone which intersect the elements of a track, i.e. $k = \ell n$. The television system is based on interlaced scanning with 50 fields per second, the full number of lines being 567. For purely technical reasons, only two-thirds of all the lines of each are used. This amounts to about 94 lines per sub-zone for a field so that for the maximum detuning for a chick trace in one sub-zone the deviation is $k = 378$ pulses. The deviation of a track from its central position in the control zone is determined separately for all four sub-zones, for each third field by means of four counter circuits 6 - 9 of the preliminary dividers and finally by means of four storage interpolators 10 - 13 (see Fig. 2). The logical control circuit 14, which is coupled to 10 - 13, produces a mismatch signal when the track deviates from its central position; the signal is then applied to the servo mechanisms of the microscope which eliminate the "mismatch". The

Card 5/10

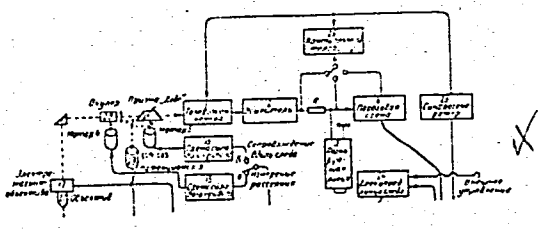
S/120/61/000/002/030/042
B102/B502

An Instrument for ....

There are 4 figures and 7 references: 3 Soviet and 4 non-Soviet.

ASSOCIATION: Fizicheskiy institut AN SSSR (Physics Institute of the AS USSR)

SUBMITTED: April 25, 1960



Card 9/10

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E039/E485

24.6830
21.6000

AUTHORS: Voronkov, A.K., Murin, I.D., Sukhov, L.V., Shtranikh, I.V.

TITLE: An apparatus for the automatic survey of nuclear photo-emulsions by a television roster method
II. The recording system

PERIODICAL: Pribory i tekhnika eksperimenta, no.1, 1962, 42-49

TEXT: In the study of cosmic rays and other nuclear processes thick layer photo-emulsion plates are used for recording charged particles. The resulting tracks in the emulsion are studied under a microscope. In the particular cases when emulsions are exposed in artificial satellites and in accelerators, a very large amount of work is entailed in surveying the plates. Using a device for the automatic television survey of nuclear photo-emulsions, previously described by the present authors (Ref.1: PTE, No.2, 1961, 63), the rate of making measurements on scattering and ionization of particles is accelerated by 10 to 100 times.
Some of the main characteristics of the apparatus are as follows:
1) type of microscope МБИ8 (MBI8) (modified);

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An apparatus for the automatic ...

2) measurement of ionization velocities of 20 to 100 micron/sec;
3) measurement of scattering velocities up to 200 micron/sec;
4) accuracy of measuring scattering tracks ± 0.01 micron;
5) length of measured track (maximum) 50 mm;
6) limit of microcursor ± 250 micron;
7) capacity of analyser channels 999 impulses;
8) frequency of figure printing ~75 symbols/sec;
9) power consumption ~ 3 KW
10) number of valves, 500.

The method of measuring ionization track lengths and multiple scattering is described in detail. A special form of oscillating microscope objective for scanning the plate, with automatic focusing, is used. The microscope stage is moved synchronously in steps of 2 mm. This usually produces up to 6 impulses and corresponds to 64 frames on the television presentation. The time between each group of pulses is used for damping the system and improving the focusing. The stability and accuracy of the results obtained is also considered. Some of the essential requirements in this respect are:

Card 2/3

1) Maintenance of contrast, which depends on, a) the amplification coefficient of the video-amplifier; b) the sensitivity of the transmitting tubes; c) the intensity of illumination.
2) Maintenance of the linearity of the amplifier and accuracy of focusing.
There are 3 figures.

ASSOCIATION: Fizicheskiy institut AN SSSR
(Physics Institute AS USSR)

SUBMITTED: June 10, 1961

Card 3/3

41432

S/120/62/000/005/003/036
E032/E314

AUTHORS: Kozinets, O.I., Shapiro, F.L. and Shtranikh, I.V.

TITLE: A linear ion-buncher

PERIODICAL: Pribory i tekhnika eksperimenta, no. 5, 1962, 25 - 28

TEXT: This paper describes an ion-buncher in which a monoenergetic ion beam is converted into bunches of monoenergetic ions. The principle of the device is illustrated in Fig. 2. Suppose that ions of velocity V_0 enter the buncher at $x = 0$. In order to bunch the ions between $t = 0$ and $t = t_H$, the velocity of each ion must be increased by $V = V_\Phi - V_0$ at the appropriate time t and the corresponding coordinate $x = V_\Phi (t - t_H)$, where t_H is the instant at which the ion collection begins. This means that the electric field should travel along the axis of the buncher with the velocity V_Φ. The voltage front $U(x)$ is at rest in the coordinate system moving with the velocity V_Φ and if the height of this front eU

Card 1/3

A linear ion-buncher

is equal to $1/2\ mV^2$, or somewhat less, then in this system of coordinates the ions are slowed down to zero or some small finite velocity, i.e. they are bunched on the crest of the voltage wave. The bunching coefficient is given by

$$V'/V = \sqrt{1 - eU_{max}/E} \quad ; \quad E = \frac{1}{2} mV^2 \qquad (3)$$

where V' is the ion-drift velocity on the crest of the voltage wave. If the height of the voltage wave eU is greater than $1/2\ mV^2$, then the ions are reflected from it, the length of the beam is unaltered but the time spread is reduced by a factor equal to $\left[2(V_\Phi/V_0) - 1\right]$. This type of buncher can be used with the aid of an axial set of apertures in which the axial field U is of the form

$$U = 0 \quad \text{for} \quad x_{lab} > V_\Phi(t - t_H) ,$$

$$U = U_{max}/d\left[x_{lab} - V_\Phi(t - t_H)\right] \text{ for } V_\Phi(t-t_H) - d \leqslant x_{lab} \leqslant V_\Phi(t-t_H) ,$$

$$U = U_{max} \text{ for } x_{lab} < V_\Phi(t - t_H) - d \qquad (6).$$

Card 2/#3

S/120/62/000/005/003/036
E032/E314

A linear ion-buncher

For deuterons of energies between 0.6 and 5 kV, linear bunching ratios of 6-7 can be obtained for $V_\Phi = 10^8$ cm/sec, initial length of beam 10 cm, voltage "rise length" of 5 cm and initial energy spread of 50 eV. The corresponding time-bunching ratios are 25 - 9.5. Multiple bunching is also possible, at least, in principle. There are 2 figures and 1 table.

ASSOCIATION: Fizicheskiy institut AN SSSR
(Physical Institute of the AS USSR)

SUBMITTED: January 13, 1962

Card 3/3

ACCESSION NR: AR4020779 S/0271/64/000/002/B037/B038

SOURCE: RZh. Avtomat., telemekh. i vy*chislitel. tekhnika, Abs. 2B234

AUTHOR: Shtranikh, I. V.

TITLE: Use of a pre-memory for recording high-speed processes

CITED SOURCE: Tr. 5-i Nauchno-tekhn. konferentsii po yadern. radio-elektronike. T. 2. Ch. 1, M., Gosatomizdat, 1963, 47-58

TOPIC TAGS: auxiliary memory, high-speed process, pulse distribution equalizer, high-speed counter, nuclear electronics, nuclear counter, nuclear instrument, beam storage tube

TRANSLATION: Most instruments used in nuclear electronics are designed to record pulses which are statistically distributed in time. The maximum pulse recording rate of counters is determined by the "dead" time of the instruments. "Equalizer" devices are used to increase the number of recordable pulses. Equalizers remember the arriving pulses in some type of operational memory and then distribute them more uniformly in time. There are three principal classes of equalizers:

Card 1/2

ACCESSION NR: AR4020779

single-channel; multichannel-time and multichannel-amplitude; and multidimensional equalizers. The memory of the single-channel equalizer is a capacitor which is charged by the arriving pulses and discharges regular pulses, or, depending on the availability of the main counter, after a time delay. Two equalizer circuits are given; one for insertion ahead of an ordinary mechanical counter, and the other ahead of a high-speed counting circuit. A ferrite memory or a beam storage tube is used as the operational memory for the multichannel and multidimensional equalizers. Circuits are described of the multichannel time equalizer with a ferrite memory designed to operate in a 1024-channel time selector, and of a multichannel-amplitude equalizer in which the amplitude spectrum is remembered in a beam storage tube. Orig. art. has 6 figs. and 11 refs. G. K.

DATE ACQ: 03Mar64 SUB CODE: CP, SD ENCL: 00

Card 2/2

ACCESSION NR: AR4022435 S/0058/64/000/001/A028/A029

SOURCE: RZh. Fizika, Abs. 1A269

AUTHORS: Zhukov, G. P.; Zabiyakin, G. I.; Radionov, K. G.; Shibayev, V. D.; Shtranikh, I. V.

TITLE: Multidimensional registration system

CITED SOURCE: Tr. 5-y Nauchno-tekhn. konferentsii po yadern. radioelektronike. T. 2. Ch. 2. M., Gosatomizdat, 1963, 115-122

TOPIC TAGS: multidimensional registration system, intermediate memory storage, ferrite core memory, magnetic tape memory, pulse height spectrum, visual estimate of spectrum, data readout to computer

TRANSLATION: A multidimensional registration system is considered, in which the pulses that carry the information are memorized in the

Card 1/2

ACCESSION NR: AR4022435

intermediate memory as they are received. After the end of the experiment, the information is processed and sorted out by channels. The sorting unit is a 1024-channel analyzer with ferrite-core memory. The intermediate memory employs a 35-mm magnetic tape, on which 25 tracks are recorded simultaneously. With 25-track recording, the total number of memory channels can reach 32×10^6. The intermediate memory block includes an equalizing unit with five memory elements, which reduces the effective value of the instrument dead time to 80--100 microseconds. The program for reducing the experimental data makes it possible to monitor the preliminary results of the measurements by extraction of eight 128-channel pulse-height spectra. After a visual estimate of the spectra, the information is fed by cable directly to a "Kiev" computer. Yu. Semenov.

DATE ACQ: 03Mar64 SUB CODE: CP, SD ENCL: 00

Card 2/2

SHTRANIKH, I.V., kand. tekhn. nauk

International Symposium on Nuclear Electronics. Vest. AN SSSR 34 no.5:125-126 My '64. (MIRA 17:6)

L 13005-65 EWT(d)/EWP(1)/EED-2 Po-4/Pq-4/Pg-4/Pk-4 IJP(c) BB/GG
ACCESSION NR: AR4039895 S/0058/64/000/004/A029/A030

AUTHORS: Shtranikh, I. V.; Bochkarev, V. N.; Volkov, A. N.; Klabukov, A. M.

SOURCE: Ref. zh. Fiz., Abs. 4A302

TITLE: Multidimensional TsIRU recording system

CITED SOURCE: Tr. 5-y Nauchno-tekhn. konferentsii po yadern. radioelektronike. T. 2. Ch. 2. M., Gosatomizdat, 1963, 135-143

TOPIC TAGS: digital recording system, pulse height analyzer, pulse time analyzer, magnetic drum memory, binary coding

TRANSLATION: Data are reported on the TsIRU centralized measuring and recording unit (CMRU) developed jointly by the Lebedev Institute and by the OIYaI. This system was designed for the registration of four independent 64 x 64 multidimensional spectra with capacity of

Card 1/3

10,000 pulses per channel, and simultaneous registration of two 256-channel pulse-height and four time spectra, the capacity of each channel also being 10,000 pulses. The CMRU memory block is a magnetic drum device. This magnetic memory contains more than 80 heads and has a peripheral resolution of ~4 x 10^3 writing pulses (2.7 pulses per mm of length). The number of drum revolutions is 25 per second. By employing preliminary memorization of the incoming pulses (in code form) and a system for selecting the next necessary address, it is possible to write in each drum sector up to 25 statistically distributed pulses per second. Methods of reducing the dead time of the system during the registration of spectra are discussed. The average recording time can be reduced to 10 μsec. The operating speed of the system is ensured by using an "equalization of the statistics" method. One of the features of this system is coding of the incoming parameters in binary form, which is then processed prior to obtaining the final results. Another distinguishing feature is the possibility of preliminary determination of the

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ACCESSION NR: AR4039895

necessary address in the ferrite type buffer memory system connected ahead of the recording circuits of the drum. A block diagram of the CMRU is presented, and variants of its operation for registration of multidimensional spectra and realization of multichannel measurements are discussed in detail. M. Vishnevskiy.

SUB CODE: DP, NP ENCL: 00

Card 3/3

ACC NR: AP6022001 SOURCE CODE: UR/0120/66/000/003/0082/0088

AUTHOR: Puzanov, V. V.; Shtranikh, I. V.; Matachun, A. T.

ORG: Physics institute, AN SSSR, Moscow (Fizicheskiy institut AN SSSR)

TITLE: An interim memory unit for a multidimensional analyzer

SOURCE: Pribory i tekhnika eksperimenta, no. 3, 1966, 82-88

TOPIC TAGS: storage device, magnetic drum, spectrometry

ABSTRACT: Several methods of designing multidimensional memory units, based on memories of the dynamic type such as delay lines and magnetic drums, for use in multichannel spectrometers of nuclear physics are discussed. Memory circuits are presented and the operation of the basic functional memory elements on shift registers with a storage capacity of 5 digits is described. A theoretical analysis is also made of the accuracy of a memory unit of the similar type. Experiments have shown that such a system can record pulses occurring statistically with an intensity of up to 200 pulse/sec with a 1% error. The structure of such a memory unit is shown to considerably depend on how the numbers and their digits are arranged in the basic memory, i.e., on the surface of a magnetic drum. In this case in registering two parameters of an arbitrary event the value of one parameter is determined by the number of the larger sector (ni) of the drum and the other parameter is determined by the track number (mi). The number of identical events is recorded in a sequential code within each track mi in the region of sectors ni. Intermediate recording versions are also

Card 1/2 UDC: 539.1.075

ACC NR: AP6022001

possible. Orig. art. has: 3 figures.

SUB CODE: 09, 20/ SUBM DATE: 18May65/ ORIG REF: 004/ OTH REF: 002

Card 2/2

USSR/Human and Animal Physiology. Nerve and Muscle Physiology. T-9

Abs Jour: Ref Zhur-Biol., No 12, 1958, 55944.

Author : Shtrankfel'd, I. G.
Inst :
Title : The Characteristics of Viscosity and Elasticity of Various Type Muscles.

Orig Pub: Biofizika, 1957, 2, No 2, 166-173.

Abstract: Some experiments were performed on the sartorius (tetanic) of a frog, on a tissue strip of the transversus (smooth tonic muscle), on the rectus abdominis muscle (tonic striated muscle), and also on the obturator muscle (tonic) of the anodals. The dimensions of the muscle strips were equivalent in all experiments. In order to investigate the deformation (D) of the muscles under a constant load (Of 0.5-20 r), a device

Card : 1/3

Abs Jour: Ref Zhur-Biol., No 12, 1958, 55944.

D was accompanied by irreversible modifications of the muscular structure. The tetanic muscles proved to be the least myoplastic. Their structure was easily reestablished after the load was removed, a fact which is probably related to their characteristic contraction type.

S[illegible]L'D, I.G., Cand Bio Sci--(diss) "Mechanical ~~[illegible]~~ properties of various types of muscles in various functional states." Mos, 1958. 30 pp (Acad Med Sci USSR), 200 copies (KL, 10-58, 103)

SHTRANKFEL'D, I.G.

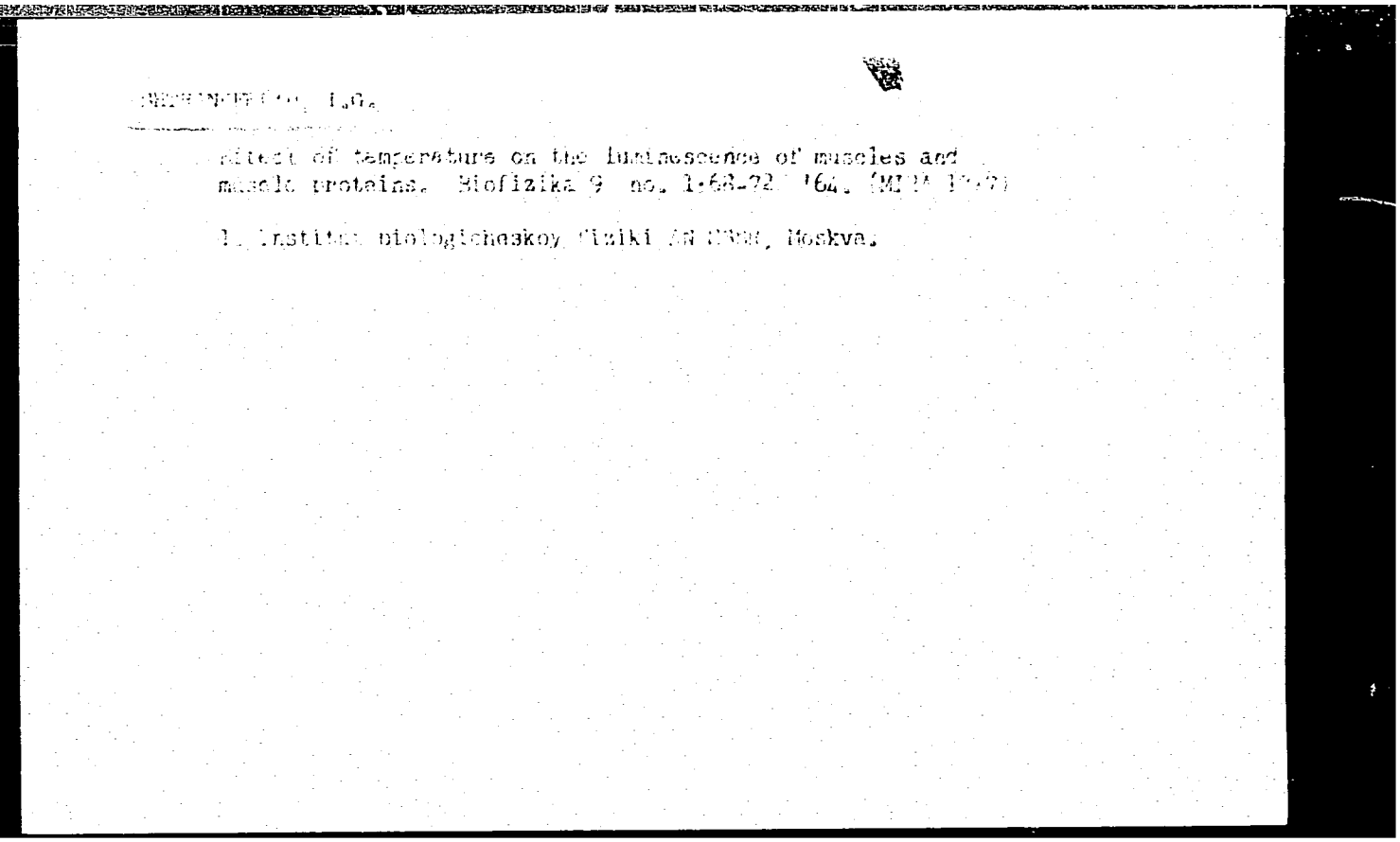
Effect of temperature on the viscosity of different muscle types [with summary in English]. Biofizika 3 no.2:144-151 '58. (MIRA 11:4)

1. Institut biologicheskoy fiziki AN SSSR, Moskva.
(MUSCLE) (TEMPERATURE--PHYSIOLOGICAL EFFECT)

SHTRANKFEL'D, I.G.

Ultraviolet luminescence of muscles and muscle proteins.
Biofizika 8 no.6:690-695 '63. (MIRA 17:7)

1. Institut biologicheskoy fiziki AN SSSR, Moskva.



[illegible] I. G.

Effect of temperature on the luminescence of muscles and muscle proteins. Biofizika 9 no. 1:68-72 '64. (MIRA 17:7)

1. Institut biologicheskoy fiziki AN SSSR, Moskva.

SHTRANKFEL'D, I.G.

Effect of denervation on the luminescence properties of muscles. Dokl. AN SSSR 154 no.4:953-955 F '64.
(MIRA 17:3)

1. Institut biologicheskoy fiziki AN SSSR. Predstavleno akademikom A.I. Oparinym.

FILATOVA, L.G.; SHTRANKFEL'D, I.G.

Luminescent microscopic study of denervated muscles. Dokl. AN SSSR 157 no.5:1228-1230 Ag '64. (MIRA 17:9)

1. Institut biologicheskoy fiziki AN SSSR. Predstavleno akademikom A.N. Bakulevym.

KALAMKAROVA, M.B.; KOFMAN, Ye.B.; FILATOVA, L.G.; SHTRANKFEL'D, I.G.

Binding of acridine orange by muscle proteins. TSitologiia 7 no.2: 240-243 Mr-Ap '65. (MIRA 18:7)

1. Laboratoriya biofiziki zhivykh struktur Instituta biofiziki AN SSSR, Moskva.

KALAMKAROVA, M.B.; SHTRANKFEL'D, I.G.

Possibility of the "contraction" of some protein models. Biofizika 10 no.3:518-520 '65. (MIRA 18:10)

1. Institut biologicheskoy fiziki AN SSSR, Moskva. Submitted Sept. 4, 1964.

ACC NR AR6031903 SOURCE CODE: UR/0058/66/000/006/H043/H043

AUTHOR: Shtrapenin, L. B.

TITLE: Polarization of helical waves in a helical waveguide

SOURCE: Ref. zh. Fizika, Abs. 6Zh298

REF SOURCE: Tr. 1-y Mezhvuz. konferentsii ped. in-tov po radiofiz. i spektroskopii. M., 1965, 120-125

TOPIC TAGS: helical wave, helical waveguide, wave propagation

ABSTRACT: Two cases of helical wave propagation in a helical waveguide are calculated. In the first case one of the waves, polarized by means of radiation through the slots, weakens rapidly and a wave polarized along the circle is obtained. In the second case, the pitch of the helix is selected in such a way as to exclude radiation. The results of the calculations are in good agreement with the results of the measurements. I. Beluga. [Translation of abstract]

SUB CODE: 09/

Card 1/1

AUTHOR: Shtrapenin, L. B. SOV/57-28-7-34/35

TITLE: The Rotation of a Symmetry Plane of the TE_{11} Wave Through the Longitudinal Resonance n $\lambda/2$ Slot in a Circular Wave Guide (Vrashcheniye ploskosti simmetrii volny TE_{11} prodol'noy rezonansnoy n $\lambda/2$ shchel'yu v kruglom volnovode)

PERIODICAL: Zhurnal tekhnicheskoy fiziki, 1958, Vol. 28, Nr 7, pp. 1613-1616 (USSR)

ABSTRACT: The problem of the rotation of the symmetry plane of the TE_{11} wave through the longitudinal $\lambda/2$ slot was theoretically solved by Levin (Refs 1 and 2). Proceeding from the theory of slot antennae he obtained the formula (1) for the angle of rotation of the symmetry plane α. The equation (2) is written down for the maximum angle of rotation α. The rotation of the symmetry plane of the TE_{11} wave is generalized for the case of an n $\lambda/2$ slot (n = 1, 2, 3, ...). For this purpose the internal and external conductivity of the radiation of the n $\lambda/2$ slot are found. These magnitudes can be calculated from the formulae (3) and (4). - In the second part the experimental plant is described. The main part of

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The Rotation of a Symmetry Plane of the TE_{11} Wave Through the Longitudinal Resonance n $\lambda/2$ Slot in a Circular Wave Guide

this plant consisted of two rotating sections of a circular wave guide. In the first section there was a narrow longitudinal slot of variable length. By changing its length the slot could be adjusted to the resonance. The presence of the resonance was determined according to the energy minimum in the passing wave and according to the lacking ellipticity. In the second section there was a hole. The antenna was put into it. Then it was connected with indicator by means of a coaxial cable. - The experimental curves were in all cases higher than the theoretical ones. This seems to be dependent on the slot losses. They decrease the symmetrical part of the wave to a still greater extent. Professor M. L. Levin, Doctor of Physical and Mathematical Sciences, gave some good advice. Professor N. N. Malov, Doctor of Physical and Mathematical Sciences, supervised the work. There are 9 figures and 2 Soviet references.

ASSOCIATION: Moskovskiy gosudarstvennyy pedagogicheskiy institut imeni V. I. Lenina (Moscow State Pedagogical Institute imeni V. I. Lenin)

SOV/57-23-7-34/35

The Rotation of a Symmetry Plane of the TE_{11} Wave Through the Longitudinal Resonance n $\lambda/2$ Slot in a Circular Wave Guide

SUBMITTED: July 3, 1957

1. Waveguides--Applications

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ACCESSION NR: AP4007190 S/0141/63/006/005/1003/1007

AUTHOR: Shtrapenin, L. B.

TITLE: Propagation of nonradiating H_{nm} spiral modes in a spiral waveguide

SOURCE: IVUZ. Radiofizika, v. 6, no. 5, 1963, 1003-1007

TOPIC TAGS: magnetic wave propagation, spiral waveguide, spiral coordinate system, nonradiative wave propagation, electromagnetic field, H sub nm mode, H sub nm helical mode, higher mode propagation

ABSTRACT: General equations are written and solved for the propagation of the H_{nm} mode in a helical waveguide with a pitch so chosen that the wave propagates along the helix without radiating into the slots. Numerical examples are presented for the propagation constant and the helix pitch as functions of the frequency and the waveguide radius. For the H_{0m} mode the results are $\lambda_{01} = 37a$, $\lambda_{02} = 5.38a$, and $\lambda_{03} = 2.9a$, where λ is the wavelength and a the waveguide radius. For the H_{1m} mode the respective values are 14.6a, 3.52a, and 2.09a. For example, if the wavelength is 0.8 cm and the waveguide radius is

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ACCESSION NR: AP4007190

0.8 cm and the waveguide radius is 2 cm, then the values of the helix pitch (p_{01}, p_{02}, p_{03}) are 0.136, 0.94, and 1.67 cm, respectively. An experimental set-up to check some of the theoretical results is described, and good agreement is reported. Orig. art. has: 1 figure and 16 formulas.

ASSOCIATION: Omskiy gosudarstvenny*y pedagogicheskiy institut (Omsk State Pedagogical Institute)

SUBMITTED: 16Jan63 DATE ACQ: 20Jan64 ENCL: 00

SUB CODE: CO, GE NO REF SOV: 003 OTHER: 003

Card 2/2

SHTRAPENIN, L. B.

Effect of a dielectric on the length of resonance longitudinal slots and rotation of the plane of polarization of a H_{11} wave in a circular wave guide. Izv. vys. ucheb. zav.; fiz. no. 3: 72-77 '64. (MIRA 17:9)

1. Omskiy gosudarstvennyy institut imeni Gor'kogo.

SOV/136-58-12-9/22

AUTHORS: Ostroushko, Yu.I., Meyerson, G.A., Silina, G.F. and Shtrapenina, R.B.

TITLE: Electrolytic Method of Producing Tantalum (Elektroliticheskiy sposob polucheniya tantala)

PERIODICAL: Tsvetnyye Metally, 1958, Nr 12, pp 38 - 44 (USSR)

ABSTRACT: Electrolysis of melts for tantalum production was first developed in 1929 (Ref 1). The method, which was adopted outside the USSR, depended on the decomposition of Ta_2O_5, whose presence in the K_2TaF_7-KF(-KCl-NaF) melt eliminated the anode effect. Electrolysis becomes progressively more advantageous than the sodium-thermic method as the scale of operations is increased, a further advantage being the increasing availability of the pentoxide. The work described had as its object the study of electrolysis conditions for a type of electrolyte (based on NaCl + KCl eutectic) not used in practice. Electrolysis was effected in a nickel crucible (cathode) (Figure 1) 100 mm in diameter, the bath depth being 180 mm. The cylindrical graphite anode, with a working surface of 546 cm^2, was fixed centrally. The electrolyte was made by fusing the equi-molecular chlorides (calcined, chemically pure) mixture and the K_2TaF_7 (pure,

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Electrolytic Method of Producing Tantalum

dry) at 650 - 700 °C and then adding pure dry Ta_2O_5 (10-15% of the weight of the K_2TaF_7 could dissolve) after the anode had been inserted and the direct current switched on. The influence on recovery and current efficiency of the K_2TaF_7 content (10-100%) of the electrolyte (Figure 2) and of temperature (610-720 °C) (Figure 3) were studied, as was the effect on electrolysis of anodic current density (5-140 A/dm^2). The influence of these factors on the size composition of the tantalum powder was studied as was the behaviour of impurities (Figure 4 shows the impurity contents of the bath as a function of time, Table 2 giving the corresponding information for the powder). It was found that a pure powder, suitable for producing malleable tantalum could be advantageously made by electrolysis (followed by the usual purification) from electrolytes containing 67-70% (NaCl + KCl), 25-30% K_2TaF_7 and 3-3.5% Ta_2O_5 which melts at 600 °C, is highly fluid and relatively non-volatile at the electrolysis temperature

(about 700 °C) and has little effect on the nickel. A system for maintaining electrolyte quality over long working periods has been devised. The cell used provides for continuous operation with periodical removal of the 70 % Ta cathodic deposit. There are 5 figures, 2 tables and 12 references, 9 of which are English and 3 Soviet.

SHIRAPENINA, R.B.

21(4) PHASE I BOOK EXPLOITATION SOV/2714

International Conference on the Peaceful Uses of Atomic Energy. 2nd, Geneva, 1958

Doklady sovetskikh uchenykh; yadernoye goryucheye i reaktornyye metally. (Reports of Soviet Scientists; Nuclear Fuel and Reactor Metals) Moscow, Atomizdat, 1959. 670 p. (Series: Its: Trudy, vol. 3. 8,000 copies printed.

Ed. (Title page): A.A. Bochvar, Academician, A.P. Vinogradov, Academician, V.S. Yemel'yanov, Corresponding Member, USSR Academy of Sciences, and A.P. Zefirov, Doctor of Technical Sciences; Ed. (Inside book): V.V. Pereversev and G.M. Pchelintseva; Tech. Ed.: E.I. Mazel'.

PURPOSE: This volume is intended for scientists, engineers, physicians, and biologists working in the production and peaceful application of atomic energy; for professors and students of schools of higher technical education where the subject is taught; and for people interested in atomic science and technology.

COVERAGE: This is volume 3 of a 6-volume set of reports on atomic energy, presented by Soviet scientists at the Second International Conference on the Peaceful Uses of Atomic Energy, held in Geneva from September 1 to 13, 1958. Volume 3 consists of two parts. The first part, edited by A.I. Zubov, is devoted to geology, prospecting, concentration and processing of nuclear source material. The second part, edited by G.L. Zverev, includes 27 reports on metallurgy, metallography, processing technology of nuclear fuels and reactor metals, and neutron irradiation effects on metals. The titles of the individual papers in most cases correspond word for word with those in the official English language edition on the Conference proceedings. See SOV/2081 for the titles of the other volumes of the set.

Card 7/11

05714
SOV/32-25-10-33/63

28(5)
AUTHORS: Glagovskiy, B. A., Shtrasfogel', N. Ya.

TITLE: On Electric Calibration of Oscillograms in Measuring Mechanical Deformations

PERIODICAL: Zavodskaya laboratoriya, 1959, Vol 25, Nr 10, pp 1236-1238 (USSR)

ABSTRACT: In recording the deformation and other mechanical parameters on the oscillogram, corresponding adjustment data must by all means be available. In complicated experiments, the recording measuring apparatus is switched on by remote control; therefore, also the calibration device should permit the use of a remote control. But most magnetoelectric oscillographs do not permit a remote control of the velocity of motion of the needle so that the calibration marks must be recorded at the operation velocity of the needle. The term of "calibration" (instead of "taring") of the oscillograms was introduced by I. D. Piven. An electrocalibrator (claim Nr 580008/25 of July 5, 1957 "Device for Measuring Deformation of Loaded Mechanisms ITU-6" to the Komitet po delam izobreteniy i otkrytiy pri Sovete Ministrov SSSR (Committee on Inventions and Discoveries at the Council of Ministers, USSR)) was designed by applying the method of shunting of the working-

Card 1/2

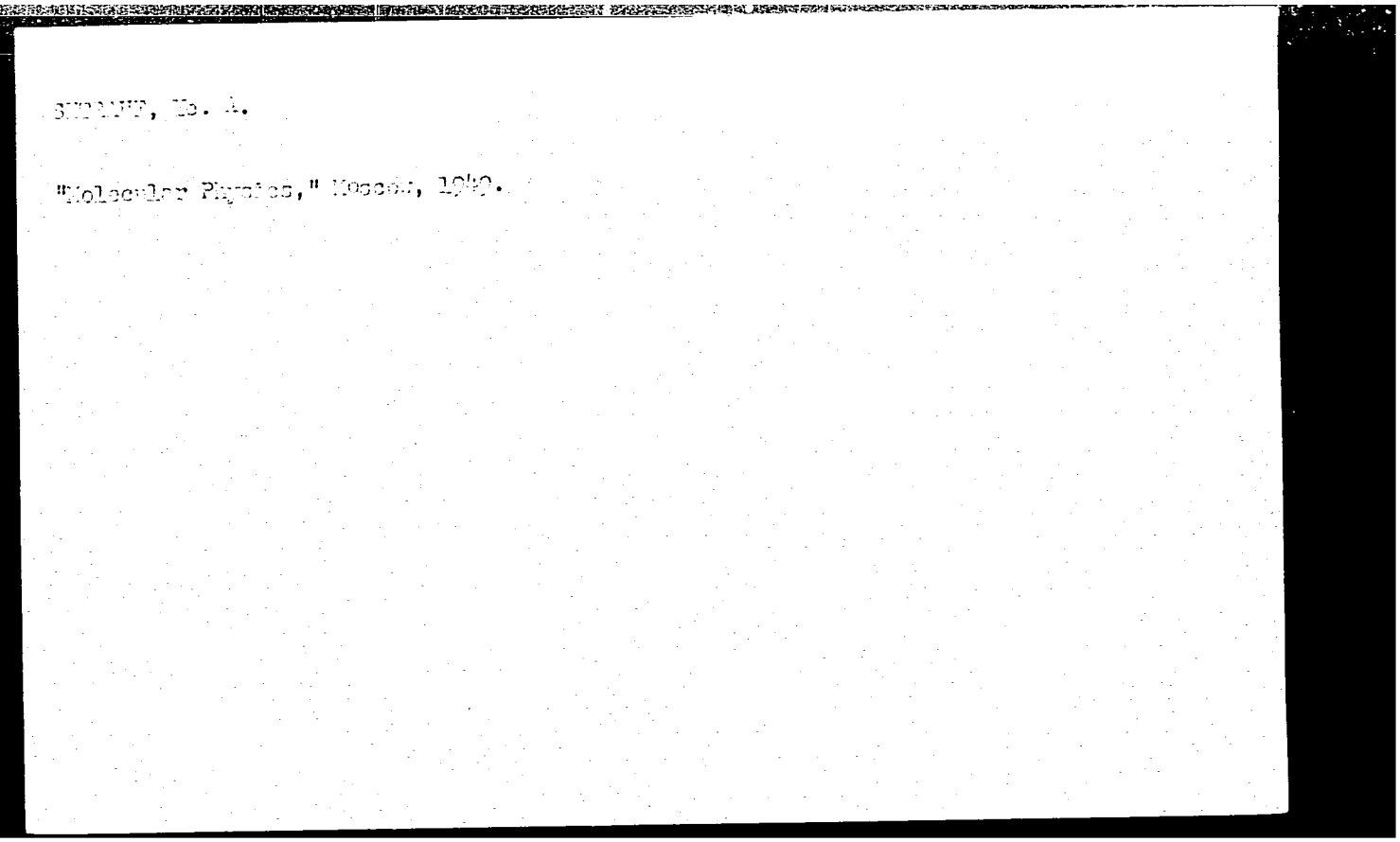
Synthesis of proteins. Priroda 45 no.2:38-43 F '56. (MLRA 9:5)

1. Meditsinskiy institut v Budapeshte.
(PROTEINS)

SHTRAUB, F.B.

Role of ribbnucleic acids in protein synthesis. Vop.med.khim. 6 no.2:115-120 Mr-Ap '60. (MIRA 14:5)

1. Institut meditsinskoy khimii, Budapeshtskiy university.
(PROTEIN METABOLISM) (NUCLEIC ACID)



SHAMIF, Ya. A.

"Molecular Physics," Moscow, 1940.

SHTRAUF, Ye.A.

Kinetics of the conglomeration of fat globules during whipping of cream. Izv.vys.ucheb.zav.;pishch.tekh. no.5:129-135 '58. (MIRA 11:12)

1. Leningradskiy tekhnologicheskiy institut kholodil'noy promyshlennosti, kafedra fiziki.

(Butterfat)

SHTRAUF, Yevgeniy Andreyevich; MOROZ, L.P., nauchnyy red.; LUKASHEVICH, L.A., red.; FRUMKIN, P.S., tekhn.red.

[Course on physics for higher technical schools] Kurs fiziki dlia vysshikh tekhnicheskikh uchebnykh zavedenii. Leningrad, Gos.soiuznoe izd-vo sudostroit.promyshl. Vol.1. [Physical fundamentals of mechanics, thermodynamics and the molecular physics] Fizicheskie osnovy mekhaniki, termodinamiki i molekuliarnaia fizika. 1960. 484 p. (MIRA 14:1)
(Physics)

SHTRAUF, Yevgeniy Andreyevich; TOLSTOY, N.A., doktor fiz.-mat.nauk, retsenzent; KLIMINA, Ye.V., red.izd-va; FRUMKIN, P.S., tekhn. red.

[Physics course for institutions of higher technical education] Kurs fiziki dlia vysshikh tekhnicheskikh uchebnykh zavedenii. Leningrad, Sudpromgiz. Vol.2.[lectricity and magnetism]Elektrichestvo i magnetizm. 1962. 552 p. (MIRA 16:3)
(Electricity) (Magnetism)

SHTRAUKH, M., narodnyy artist RSFSR.

Memorable features. Sov. foto 17 no.4:5-7 Ap '57. (MLRA 10:6)
(Photography) (Lenin, Vladimir Il'ich, 1870-1924)

SHTRAUKH, S. A.

VAKIN (A. T.) & SHTRAUKH (S. A.). О некоторых трутовиках на Кавказской Пихте (**Abies nordmanniana Link**). [Some bracket fungi on Caucasian Fir (*Abies nordmanniana* Link).]—*C. R. Acad. Sci. U.R.S.S.*, N.S., 73. 1, pp. 203-206, 3 figs., 1950.

During their work in 1947 and 1948 in the Teberdin and Caucasus State Forest Preserves and in the forests in the Stavropol and Krasnodar districts, the authors studied the bracket fungi occurring on Caucasian fir (*Abies nordmanniana*) in mature and old stands. The most common species were *Fomes robustus* [*R.A.M.*, 15, p. 68], which is destroying the wood of trees 200 years old or over; *Polyporus turkeleyi* [ibid., 11, p. 680] at high altitudes, causing a root rot; and *P. dryadeus* [ibid., 9, p. 749; 11, p. 680], causing a rot of the roots and the lower trunk.

SHTRAUKH, S. A.

SHTRAUKH, S. A. "On the Biology of the Fungus, Phomopsis quercella Which Infects Acorns," Doklady Akademii Nauk SSSR, vol. 81, 1951, pp. 109-112. 511 P444A

SO: SIRA SI - 90- 53, 15 December 1953

Shtraukhman, E.

USSR/Meadow Cultivation - The Meadow. K-1

Abs Jour : Referat Zhur - Biologiya, No 16, 25 Aug 1957, 69148

Author : Zagrebaev, I., Shtraukhman, E.
Inst :
Title : Experiment in Improvement of Marchy Meadows and Swamps.

Orig Pub : S. kh. Sibiri, 1956, No 6, 46-50

Abstract : Experiments were conducted in 1954-1956 on two collective farms of the Omsk district on an area of 1000 hectares. The bushes were cut down by a cutting machine or were burned down. The lifting of the upper layer was done by a bush plough with disks of 2 to 3 tracks or by milling. Milling gave best results. Before sowing, the soil was rolled by waterspraying rollers. The sowing took place in June. On peat bog soils the oat harvest yielded 16 to 18 centners per hectare, sunflower for silage, 150-210 centners per hectare, turnips, white cabbage, 350-500 centners per hectare. On sections with a lighter layer of

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Abs Jour : Referat Zhur - Biologiya, No 16, 25 Aug 1957, 69148

turf and on peat bog salty meadow soils, turnips, cabbage and grasses produced low yields. On the third year after plowing with milling operations the growth of grasses is well restored -- that of safflower(?) (svetlukha). Scolochloa, reed, cane, foxbrush, etc. 16 to 42 centners per hectare of safflower (svetlukha) hay was harvested.

SHTRAUKHMAN, E.A.; ZAGREBAYEV, I.I., kand.sel'skokhozyaystvennykh nauk, starshiy nauchnyy sotrudnik

Improving natural hayfields and pastures on virgin lands in Omsk Province. Zhivotnovodstvo 23 no.6:65-68 Je '61. (MIRA 16:2)

1. Direktor Alekseyevskogo sovkhoza, Omskoy oblasti (for Shtraukhman). 2. Sibirskiy nauchno-issledovatel'skiy institut sel'skogo khozyaystva (for Zagrebayev).
(Omsk Province--Pastures and meadows)

Štraus, A. V. On the theory of Hermitian operators. Doklady Akad. Nauk SSSR (N.S.) 67, 611–614 (1949). (Russian)

Given a generalized Hermitian operator A in Hilbert space $\mathfrak{H}$, i.e., $(Af, g) = (f, Ag)$ for $f, g \in \mathfrak{D}_A$ (where we may have $\mathfrak{D}_A \neq \mathfrak{H}$), assume A is closed and both its deficiency indices are different from 0. Fix one of the two half-planes $\Im\lambda < 0$, $\Im\lambda > 0$, denote it by π, and let $\lambda_0, \lambda \in \pi$. Put $A(\lambda) = A - \lambda I$, $U(\lambda) = A(\lambda) - A(\lambda_0)$, $\mathfrak{L}(\lambda) = \Re A(\lambda)$, $\mathfrak{M}(\lambda) = \mathfrak{H} - \mathfrak{L}(\lambda)$ (the λ-deficiency space of A). The author deals with oblique projections of $\mathfrak{M}(\lambda_0)$ into $\mathfrak{M}(\lambda_0)$ parallel to $\mathfrak{L}(\lambda)$, where λ_0 is fixed and λ varies in π. He gives the following construction and statements without proof. First, $\mathfrak{H}$ is the direct sum of $\mathfrak{M}(\lambda_0)$ and $\mathfrak{L}(\lambda)$; hence, if $\varphi \in \mathfrak{M}(\lambda_0)$, there exists a unique decomposition $\varphi = \varphi' + \varphi''$, where $\varphi'' \in \mathfrak{L}(\lambda)$. Put $\varphi' = K(\lambda; \lambda_0)\varphi$ (the oblique projection). Let $P(\lambda)$ be the orthogonal projection of $\mathfrak{H}$ onto $\mathfrak{M}(\lambda)$. The formulas

$$K(\lambda; \lambda_0)\varphi = P(\lambda_0)[I - (\lambda_0 - \lambda)(\lambda_0 - \lambda)^{-1}U(\lambda_0)(I - P(\lambda_0))]^{-1}\varphi,$$
$$P(\lambda_0)[I - (\lambda_0 - \lambda)(\lambda_0 - \lambda)^{-1}T(\lambda_0)]^{-1}K(\lambda; \lambda_0)\varphi = P(\lambda_0)[I - (\lambda_0 - \lambda)(\lambda_0 - \lambda)^{-1}T(\lambda_0)]^{-1}.$$

with $\varphi \in \mathfrak{M}(\lambda_0)$, $\lambda \in \pi$, $DT(\lambda_0) = \mathfrak{H}$, $\|T(\lambda_0)\| \leq 1$, are stated and indicated as tools for proving the following theorems: (1) $K(\lambda; \lambda_0)$ is a regular function of λ in π, in the sense of weak convergence of operators; (2) $K(\lambda; \lambda_0) = K^*(\lambda; \lambda_0)$; (3) if $\mathfrak{M}$, $\mathfrak{M}'$ are infinite-dimensional subspaces, $\mathfrak{H}$ the space spanned by $\mathfrak{M} \cap \mathfrak{M}'$ with $\dim(\mathfrak{H} - \mathfrak{H}) \cong \dim \mathfrak{H}$, and if $L(\lambda)$ is a family of operators mapping $\mathfrak{M}'$ into $\mathfrak{M}$ $(\lambda \in \pi)$, where $L(\lambda)$ is a regular function of λ, $\|L(\lambda)\| \leq 1$, $L(\lambda_0) = P_{\mathfrak{M}}\varphi$ for all $\varphi \in \mathfrak{M}'$, then there exists a Hermitian operator A such that its deficiency spaces $\mathfrak{M}(\lambda_0) = \mathfrak{M}'$, $\mathfrak{M}(\lambda_0) = \mathfrak{M}$, and its corresponding family $K(\lambda; \lambda_0)$ of oblique projections of $\mathfrak{M}(\lambda_0)$ into $\mathfrak{M}(\lambda_0)$ coincides with $L(\lambda)$. There is also a criterion, expressed in terms of $K_1(\lambda; \lambda_0)$, $K_2(\lambda; \lambda_0)$ for two Hermitian operators A_1, A_2 to be isometrically isomorphic, and a rather complicated criterion, in terms of $K(\lambda; \lambda_0)$, for $\overline{\mathfrak{D}_A} = \mathfrak{H}$. The author refers to the papers of M. S. Livšic [Rec. Math. [Mat. Sbornik] N.S. 19(61), 239–262 (1946); same Doklady (N.S.) 58, 13–15 (1947); these Rev. 8, 538; 9, 446], and of M. A. Naĭmark [Bull. Acad. Sci. URSS. Sér. Math. [Izvestia Akad. Nauk SSSR] 4, 277–318 (1940); 7, 237–244 (1943); these Rev. 2, 105; 5, 272].

O. M. Nikodým (Gambier, Ohio).

Source: Mathematical Reviews, Vol. 11 No. 3

SHTRAUS, A.V.

SHTRAUS, A. V.

Štraus, A. V. On a class of regular operator-functions. Doklady Akad. Nauk SSSR (N.S.) 70, 577–580 (1950). (Russian)

Let H_1, H_2, H_1', H_2' be unitary spaces with $\dim H_1 = \dim H_2'$, $\dim H_2 = \dim H_1'$, and V an isometric transformation of $H_1 \oplus H_2$ to $H_1' \oplus H_2'$ such that $V\phi_k \varepsilon H_k'$ for $\phi_k \varepsilon H_k$ implies $\phi_k = 0$. Writing $\phi = \phi_1 + \phi_2$, $\phi_i \varepsilon H_i$, we have $V\phi_k = V_{1k}\phi_k + V_{2k}\phi_k$, where V_{ik} is a transformation from H_k to H_i'. Let $F(z)$ be a transformation from H_1 to H_1' such that: (1) $F(z)$ is a regular function of the complex parameter z for $|z| < 1$, (2) $\|F(z)\| < 1$, (3) $F(0) = V_{11}$. Then the transformation (4) $G(z) = V_{22}^* V_{12}^* F(z)[E - V_{11}^* F(z)]^{-1} V_{21}^*$ is well-defined from H_2' to H_2, is a regular function of z for $|z| < 1$, and (5) $\|G(z)\| \leqq |z|$. Conversely, if $G(z)$ has these last properties, $F(z)$ defined by (6) $F(z) = V_{11} + V_{12}G(z)[E - V_{22}G(z)]^{-1}V_{21}$ satisfies (1)–(4). Further, from a result of Neumark [Bull. Acad. Sci. URSS. Sér. Math. [Izvestia Akad. Nauk SSSR] 4, 53–104 (1940); these Rev. 2, 104] it follows that if $H_1, H_1', F(z)$ with properties (1), (2) are given, then H_2, H_2', V, G can be defined so that (3), (4), (5), (6) hold. Conversely, if F can be written in the form (6), then (1) and (2) hold. *B. Crabtree* (Cambridge, Mass.).

Source: Mathematical Reviews, 1950 Vol 11 No. 6